



DISCUSSION 1: LIVING ON THE ICE

What personal, physical, and scientific *challenges* and *dangers* do researchers face while they are working at Reedy Glacier? (Modules 2, 4, 7)

What personal and scientific *advantages* and *rewards* do they face working “on the ice”?

What limitations to the extent of their work might they experience?

FURTHER INVESTIGATIONS:

Visit Antarctica using Google Earth. Can you find the Transantarctic Mts, the South Pole, the West Antarctic Ice Sheet? Reedy Glacier? (Module 2)

The base station for U.S. researchers in Antarctica is McMurdo Station. Visit the McMurdo Station web cam to see what it looks like today!

LINKS:

McMurdo Station & webcam:
www.nsf.gov/od/opp/support/mcmurdo.jsp



1. Why is everyone talking about climate?

2. Welcome to Reedy Glacier, Antarctica



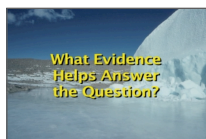
3. Why do scientists go to Antarctica?

4. Daily life at Reedy Glacier



5. What is the researcher's question?

6. What might the answer be?



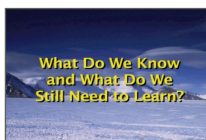
7. What evidence helps answer the question?

8. What can rocks tell us about glacier age?



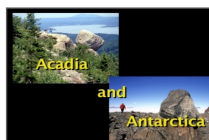
9. What did the researchers find?

10. What does the evidence mean to the researchers?



11. What do we know, and what do we still need to learn?

12. Acadia and Antarctica



THE SCIENCE OF CLIMATE CHANGE: A JOURNEY TO REEDY GLACIER, ANTARCTICA



EXHIBIT DISCUSSION GUIDE

Climate affects everyone.

That is why, as Earth's climate warms measurably, climate change and its effects are a powerful impetus for involving citizens in public policy discussions, and in the search for ways to adapt to and mitigate rapid change. The need for citizens to understand the science behind climate change has never been greater.

The interactive electronic exhibit “The Science of Climate Change: A Journey to Reedy Glacier, Antarctica” communicates information to public audiences about the general process of investigating climate change through the particular case of current research at Reedy Glacier in Antarctica. It also reflects upon the relevance of the research to Maine.

This Discussion Guide provides teachers, discussion groups, and others a jumping-off point for continued discussion and exploration about the research, the process of science, climate change and the implications of all of these together for society.

The Journey to Reedy Glacier, Antarctica exhibit and this Discussion Guide are created with support from the University of Maine Climate Change Institute, Acadia National Park, and the Maine Discovery Museum through a grant from the National Science Foundation: .ESI Communicating Research to Public Audiences Grant #0628867



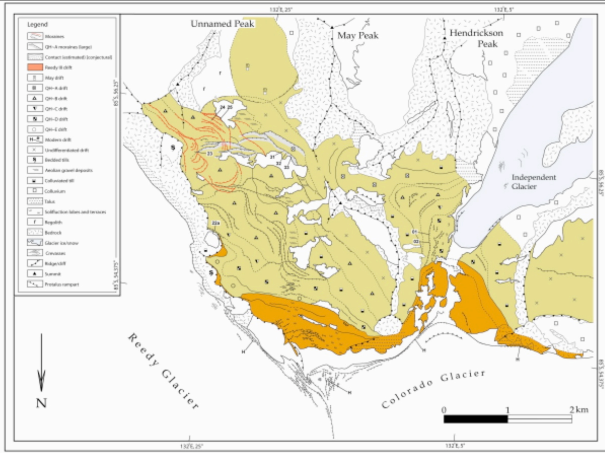


Fig. 1.10 Drift sheets, moraines, and surficial geomorphology of the Quartz Hills beside Reedy Glacier. Numbers refer to excavation locations.

DISCUSSION 2: SCIENCE PROCESS AND UNCERTAINTY

How do the Reedy Glacier scientists talk about uncertainty? What are they still uncertain about? How do they balance what they know and what they don't know? (Modules 5,6,10,11)

What evidence do the Reedy scientists use, and what uncertainties might be built into their interpretations of the evidence? (Modules 7, 8, 9, 10)

Did the Reedy scientists answer their question? (Modules 5, 6, 10, 11)

How can a society best use scientific information to make good policy decisions in light of scientific uncertainty?

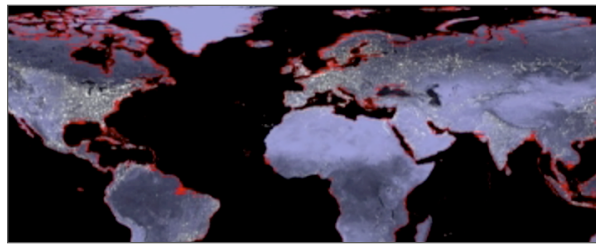
FURTHER INVESTIGATION:

Find out what role science is playing as climate change policies are being developed in your state.

How do International Panel of Climate Change (IPCC) scientists discuss uncertainty in their reports?

LINKS:

International Panel of Climate Change:
www.ipcc.ch



DISCUSSION 3: CONNECTING CLIMATE RESEARCH TO MY LIFE

Which of the possibilities that the Reedy Glacier scientists talk about could affect my life, and how? (Modules 1, 11)

How might the work at Reedy Glacier relate to the greenhouse effect or other aspects of climate change that I hear about in the news?

What are some implications of Earth's changing climate for my life?

FURTHER INVESTIGATIONS:

Search the web for a carbon footprint calculator to determine how you use energy and ways to reduce your contribution to atmospheric CO₂.

Use the NetLogo climate model to discover why the concentration of carbon dioxide in the atmosphere contributes to a rise in Earth's temperature.

www.ccl.northwestern.edu/netlogo/models/ClimateChange

Consider a career in science!

RESOURCES:

Maine's Climate Future: an initial assessment. A report to the Governor and the people of Maine.
www.climatechange.umaine.edu/mainescimatefuture/index.html

Maine's Ice Age Trail Map:
www.iceagetrail.umaine.edu/

THINKING BEYOND THE EXHIBIT

How does the work at Reedy Glacier and in Antarctica fit into the larger context of climate research? (Modules 5, 11)

LINKS:

www.climatechange.umaine.edu
www.ncdc.noaa.gov/



Scientists at Reedy Glacier used cosmogenic dating as a measure (or proxy) how long ago the rocks at the edge of the glacier were uncovered by the melting ice. What other measurements or proxies are used to reconstruct Earth's climate history? (Modules 7, 8)

LINKS:

www.ncdc.noaa.gov/paleo/

Besides Antarctic glaciers shrinking and growing, what other features on Earth change as climate changes? How are scientists monitoring those changes?

LINKS:

www.nws.noaa.gov/ weather
www.usgs.gov/ land/freshwater
www.gomoos.org oceans
www.geo.unizh.ch/wgms/ glaciers